

Definition

The external eye structures include the eyelids and surrounding tissues, conjunctiva, lacrimal apparatus, cornea, and anterior chamber.

Technique

The astute clinician can frequently gain helpful diagnostic information about a patient by briefly but meticulously studying the external eyes. The eyes are small organs, so it helps to get close to the patient in order to see fine details. Compare one eye with the other; unilateral eye pathology is much more easily recognized if comparison is made with normal structures on the other side.

Study carefully the prominence of the eyes. Also note whether the opening between the lids is symmetrical. Observe the margin of the eyelids for mucus or pus discharge, scales, or lumps. The lids should fit smoothly against the eyeball.

The conjunctiva on the eyeball should be equally white in both eyes. The conjunctiva lining the inner eyelid of the lower lid may be inspected by gently pulling down the lid with a finger. The conjunctiva lining the upper lid can only be observed by everting the upper lid as shown in Figure 114.1. The lacrimal apparatus is checked by observing for excess dryness or tearing. Gently pressing the lacrimal sac at the medial corner of the lower lid and nose will normally not express any discharge.

The cornea and anterior chamber can best be examined by using a pocket flashlight. The cornea should have a lustrous surface and be crystal clear, allowing a crisp and lucid view of the iris. A scratch on the cornea can be readily demonstrated by applying a fluorescein strip and observing with a blue light.

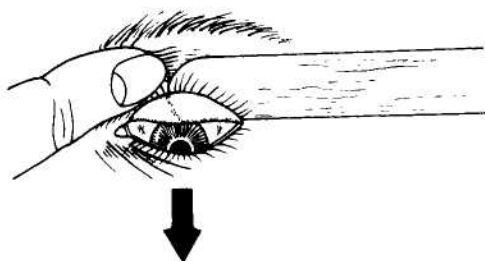


Figure 114.1
Everting the upper lid. A throat stick is placed in the upper lid fold, and the lid is pulled upward by the lashes while the patient looks down. To reinvert the lid, have the patient look up.

Basic Science

Many systemic diseases have manifestations observable in the external eye examination. Metabolic diseases such as hyperthyroidism cause changes in the tissues surrounding the eye, altering appearance and function. Changes in the autonomic nervous system alter the position of the eyelids. Abnormal lipids may be deposited in the lids, or abnormal heavy metal deposits may be deposited in a specific ring near the edge of the cornea. The lacrimal apparatus produces tears and drains them from the eye, so abnormalities may produce either tearing or a dry eye. Rheumatoid arthritis or collagen diseases may decrease tear and mucus production, causing the eyes to become dry. And as with all organs, there may be localized bacterial, viral, or fungus infections of the lids, conjunctiva, cornea, or anterior chamber. Foreign bodies and ocular trauma usually produce sudden and striking signs and symptoms in the external eye.

Clinical Significance

The tissues surrounding the eyes are easily distended by systemic edema, suggesting cardiac or renal failure. A bulging or protrusion of the eyes, called exophthalmos, is a classic sign of hyperthyroidism. There may or may not be lid signs of hyperthyroidism as well, such as retraction of the upper lids, giving the patient a wide-eyed, staring appearance. Another lid sign in thyroid disease is lid lag, in which the upper lid does not follow the eyeball exactly when the eye looks down. A drooping eyelid, called ptosis, suggests a third nerve paralysis, Horner's syndrome, or myasthenia gravis, or may be congenital.

The lid margins are subject to localized bacterial infections called a sty or hordeolum. These common lesions reveal the classic redness, swelling, tenderness, and pus discharge of any localized pyogenic infection. A definite lump in the lid without signs of acute inflammation is likely a chalazion, a cystlike accumulation of secretions in the lid margin. Tumors of the lid margin are uncommon but do occur. A discrete waxy yellowish deposit in the medial aspect of the lid is an xanthelasma, suggesting the possibility of abnormal blood lipids (Figure 114.2). A lid that sags outward so that it does not touch the eyeball is an ectropion. A lid that turns inward, allowing the lashes to scratch the eye, is called an entropion. Sometimes the lid margins are red and irritated and are covered with scales. This condition is called blepharitis and is usually associated with seborrhea on the scalp.

The conjunctiva, or "white of the eye," is a very sensitive indicator of many ocular diseases. It may be discolored yellow in jaundice, or bright red with a conjunctival hemorrhage. A spontaneous conjunctival hemorrhage, not associated with

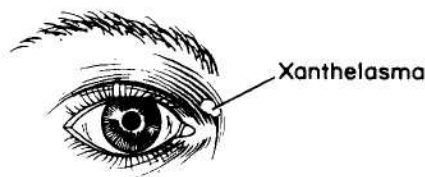


Figure 114.2

Xanthelasma, a flat, hard, yellow nodule present in the medial portions of both upper lids.

ocular disease or trauma, does not necessarily imply any systemic disease. An elevated yellow plaque at the nasal margin of the cornea is a benign lesion called a pingueculae; a lesion in the same location with fine surface vessels that grow onto the cornea is called a pterygium. These are usually not removed unless they encroach upon the visual axis.

The conjunctiva turns red in response to many types of inflammation. Commonly, bacterial infections, or more rarely, viral or fungal infections may cause a red eye. A small piece of grit may become embedded in the conjunctiva lining the upper or lower lid. This scratches the cornea and produces severe pain, especially when the eyes blink; removal gives rapid relief. Contact lenses or ocular trauma may also scratch the cornea, making the eye red and painful. Diffuse redness of the conjunctiva can also be caused by diseases within the eye itself, for example, intraocular inflammation (uveitis) and increased intraocular pressure (glaucoma).

The lacrimal apparatus, with the help of the conjunctiva, produces the tears that lubricate the eye. Rheumatoid ar-

thritis, lupus erythematosus, and scleroderma may cause decreased tear production and a dry eye. The lacrimal drainage apparatus may become obstructed, infected, or anatomically unable to drain tears, producing a chronically tearing eye.

The cornea is normally crystal clear. Any defect in the corneal epithelium, however small, is abnormal. There may be white cloudlike opacities from old inflammation or trauma, or fine radial white lines representing inactive blood vessels growing from the margins toward the center—these suggest the “ghost vessels” of previous syphilis infection. Systemic diseases may leave deposits in the margin of the cornea. A fine peripheral circular line, usually with a green tint, may be deposited in Wilson's disease. A diffuse haze or murky appearance of the cornea may indicate diffuse corneal edema or intraocular inflammation.

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